## REMARKS

In the Office Communication mailed July 18, 2008 as entered in the above-captioned matter, claims 1-8, 11, 19, 22, 23, 28, and 29 are pending. Claims 19, 22, 23, 28, and 29 are allowed.

The Applicants note with appreciation the indication of allowable subject matter. Claims 1-2 and 11 have been rejected under 35 U.S.C. § 103(a). The Applicants respectfully traverse these rejections and request reconsideration.

### *Rejections Under 35 U.S.C. § 103*

Claims 1-2 and 11 have been rejected under 35 U.S.C. § 103(a) given Ling et al. (U.S. Patent No. 6,961,388 B2) ("Ling") in view of Vila et al. (U.S. Patent No. 6,757,348 B1) ("Vila").

Claim 1 is argued below to overcome the rejection. Accordingly, the rejection of claim 1 in view of Ling and Vila is traversed.

Prior to addressing the merits of the Examiner's rejection, the Applicants believe it would first be helpful to briefly describe and characterize the Ling reference. Ling's FIG. 1 (reproduced below) provides a general overview of his communication system.

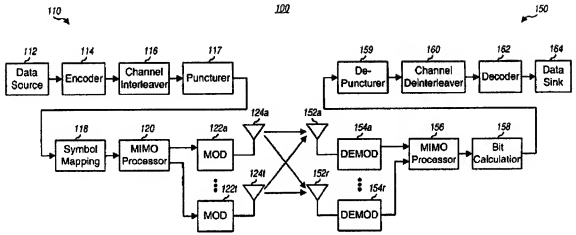


*FIG. 1*

As noted by the Examiner, Ling discloses interleaving bits at a time prior to modulation. The interleaved bits are punctured 117 and mapped 118 to form a modulation symbol and then provided to a multiple-input, multiple output ("MIMO") processor 120. The MIMO processor 120 may take the inputted modulation symbols provided in the previous steps and "demultiplex, pre-condition, or combine the received modulation symbols."[1] The MIMO processor 120 then provides the output as a vector to a respective modulator 122 and is then transmitted to the associated antenna 124 for transmission to the associated receiving antennas 152.

With respect to claim 1, the Examiner suggests that Ling discloses interleaving where "radio frequency transmitters transmits a plurality of radio frequency subcarriers to provide interleaved bits with *low channel response correlation to thereby exploit an increased amount of spatial and frequency diversity.*" [Emphasis added.] The Examiner cites column 19, lines 33-35 as supporting this observation which reads as follows:

[1] Ling at Column 4, lines 39-42.

> "From equation (2), it can be noted that the LLRs for the received coded bits within a modulation symbol tend to be correlated. This correlation can be broken up by interleaving the coded bits prior to modulation."

Ling discloses that correlation can be broken up by interleaving the coded bits. Ling specifically discloses different types of possible interleaving schemes as follows:

> Various interleaving schemes may be used for the channel interleaver. In one interleaving scheme, the coded bits (i.e., the information, tail, and parity bits) for each packet are written (linearly) to rows of memory. The bits in each row may then be permutated (i.e., rearranged) based on (1) a bit-reversal rule, (2) a linear congruential sequence (such as the one described above for the code interleaver), (3) a randomly generated pattern, (4) or a permutation pattern generated in some other manner. The rows are also permutated in accordance with a particular row permutation pattern. The permutated coded bits are then retrieved from each column and provided to puncturer 117.
>
> In an embodiment, the channel interleaving is performed individually for each bit stream in a packet. For each packet, the information bits x, the tail and parity bits y from the first constituent encoder, and the tail and parity bits z from the second constituent encoder may be interleaved by three separate interleavers, which may employ the same or different channel interleaving schemes. This separate interleaving allows for flexible puncturing on the individual bit streams.

As stated further by Ling, the channel interleaver 116 interleaves the bits in order to provide "temporal and frequency diversity" and to make sure the coded bits that form each modulation symbol are not located "close to each other (temporally)."[2] However interesting Ling's interleaving schemes may be they do not disclose the interleaving scheme and purpose claimed by the Applicants.

The Applicants disclose a system fundamentally different from Ling. An overview of the Applicants' system is shown in FIG. 2 (reproduced below).

[2] Ling at Column 11, lines 25-31.

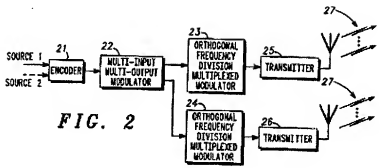


FIG. 2

The Applicants disclose a system where a MIMO 22 accepts the encoded bits for processing and outputs the processed bits to the OFDM modulators 23 and 24. The bits are processed in accordance with known OFDM techniques and interleaved over the transmitters 25, the antennas, and the subcarriers 27. The datastream is interleaved to effect minimal correlation as compared to the original order of the datastream. The Applicants disclose minimal correlation as follows:

> "(the) datastream components that are relatively proximal to one another in the original datastream and interleaved to be substantially distal from one another with respect to both transmitter and subchannel (and antenna if that resource is available) and vice versa."

The Applicants' description of minimal correlation is further shown in FIG. 7 (reproduced below).

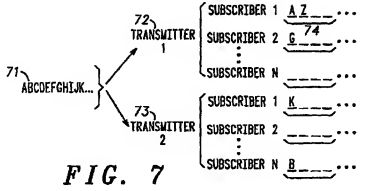


FIG. 7

The Applicants note by example only an alphabetic datastream 71 displaying letters from A to K and beyond. The datastream 71 is interleaved over transmitter 72 and transmitter 73 and the subscribers (subcarriers) 1 through N that comprise the channel. Pursuant to this example, a first datastream element "A" is assigned to transmitter 72 and subcarrier 1. The next adjacent datastream element "B" is assigned to transmitter 73 and subcarrier N. This pattern provides a minimal correlation between the elements of the datastream 71 and continues until each element of the datastream is placed on a transmitter and subcarrier.

The Applicants use of providing a minimal correlation allows a maximum amount of spatial and frequency diversity to be exploited and allows the data throughput to be robust and significantly resistant to numerous kinds of channel disruptions during transmission.

The Applicants disclose an interleaving method to provide "minimum correlation" that corresponds to the claimed "low channel response correlation" that is not anticipated by Ling. Furthermore, the Applicants' interleaving causes a minimum correlation of a datastream to create spatial diversity and not the temporal diversity disclosed by Ling. This being so, the Applicants respectfully observe that neither this portion of Ling nor any other portion of Ling addresses the Applicants claimed stipulation regarding the requirement of subcarriers providing interleaved bits with "low channel response correlation to thereby exploit an increased amount of special and increased diversity." Vila is similarly deficient in this manner.

***Claim 1***

Independent claim 1 is not obvious in view of the arguments above. Claim 1 recites interleaving where "adjacent datastream bits are assigned to differing transmitters and differing subcarriers with *low channel response correlation to thereby exploit an increased amount of spatial and frequency diversity.*" [Emphasis added.] In view of the argument above, Ling makes no disclosure of a *low channel response correlation* to thereby exploit an increased amount

of spatial and frequency diversity. The Applicants therefore respectfully submit that no combination of these two references, regardless of how obvious or unobvious that combination may be will suffice to yield a resultant combination that matches the recitations of claim 1 in this regard.

***Claims 2-8 and 11***

Claims 2-8 and 11 are ultimately dependent upon claim 1, which claim has been shown allowable above. While the Applicants believe that other arguments are available to highlight the allowable subject matter presented in various of these dependent claims, the Applicants also believe that the comments set forth herein regarding allowability of the independent claims are sufficiently compelling to warrant present exclusion of such additional points for the sake of brevity.

***Conclusion***

There being no other objections to or rejections of the claims, the Applicants respectfully submit that claims 1-8, 11, 19, 22, 23, 28, and 29 are allowable over the references of record and may be passed to allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required with respect to this communication, or credit any overpayment, to Deposit Account No. 06-1135.

Respectfully submitted,
FITCH, EVEN, TABIN & FLANNERY

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